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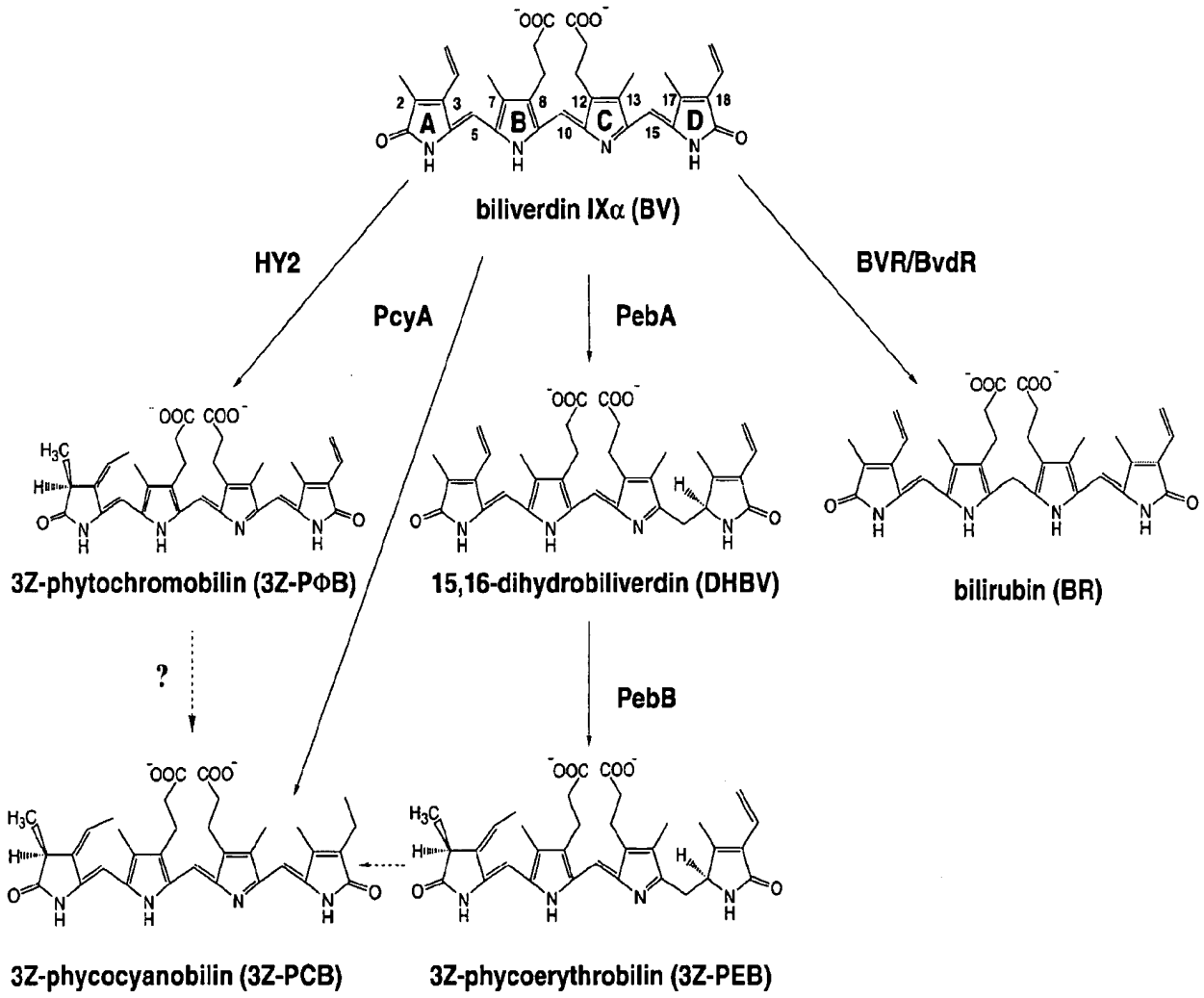

Fig. 1

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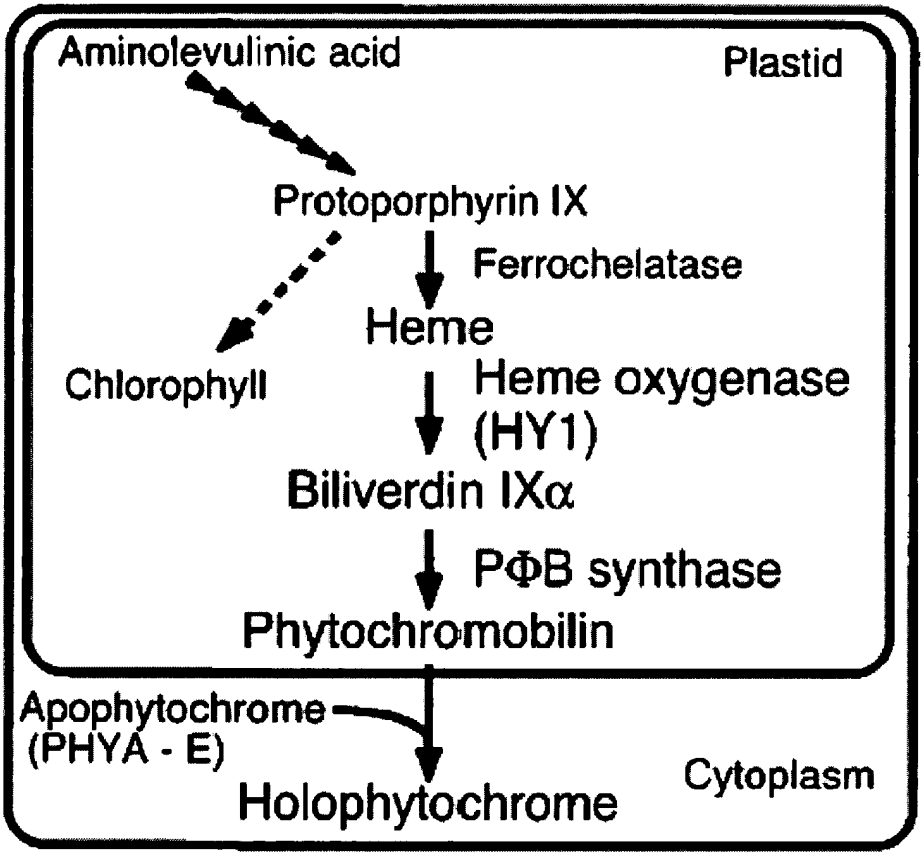

Fig. 2

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```
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accatgactcggacggatgttgaaattcattgtcgttgccaattgcgtttgtctcactga   120
aactgtgaaaattttatctcttttatagataaAGAATCTTGCTTTTTTCAGTTTTCAGTA   180
TGAAGAAGAATTGAAGAGAGTGTCCGAGGAAGGAGACCTTTGGTTTCAGTTTGTGAGTCT   240
TGTTGTAATGGCTTTATCAATGGAGTTTGGGTTTTCAATTGGGTCATGCTTCAAGGCACC   300
       M  A  L  S  M  E  F  G  F  S  I  G  S  C  F  K  A  P
AAACCCACCTGTTCTAATCTCTGCAAGCCCTAATAAGATCAATTTCACGTTGAGAAGGAG   360
 N  P  P  V  L  I  S  A  S  P  N  K  I  N  F  T  L  R  R  R
AAAGAAAAGATTCTTACTTAGAGTCTCTGCTGTGTCGTATAAGGAATTCGCAGAGTCTGC   420
                          hy2-106 *****
 K  K  R  F  L  L  R  V  S  A  V  S  Y  K  E  F  A  E  S  A
TTTAGAAGAAACCAGGAAAAGGATCGTTCTTGAACCTTCACATCTCCAGgtatatgcaat   480
 L  E  E  T  R  K  R  I  V  L  E  P  S  H  L  Q
tacatttcgttagtgtagtgggaggattatatttctcattgtttcttgctgtgaattttg   540
ggtaaattgatttgagttgtcattaggaaccaaacaaataactttactgttatagactgc   600
ttatataagtaaaagttcagattttgtttttctaatcacgaaactgtttcagGAAAAGTA   660
                                                      E  K  Y
TAGTAGCATGACAGGACTAGATGGTAAGACCGAACTTCAAATGCTTGCTTTTAAATCTTC   720
 S  S  M  T  G  L  D  G  K  T  E  L  Q  M  L  A  F  K  S  S
AAAGATTAGACTCTTGAGGAGTATGGCAATAGAGAATGAGACAATGCAGgtttaacttca   780
 K  I  R  L  L  R  S  M  A  I  E  N  E  T  M  Q
gcagtacaaactgattgctttagtcccatttccttactttcaattgattgattgtttgta   840
          hy2-105 **************************
tcttcgcttagGTCTTTGACTTTGCGGGTTTCATGGAGCCTGAGTATGATACTCCCATAT   900
                                          hy2-1,hy2-104  T
             V  F  D  F  A  G  F  M  E  P  E  Y  D  T  P  I  F
TCTGTGCTAACTTTTTCACATCTACCAACGTTAACATAGTTGTATTgtaagttatcttct   960
  C  A  N  F  F  T  S  T  N  V  N  I  V  V  L
agttatgctggagttatcaggtctgtattgtccaaactgatgttcaatattttactgtat  1020
```

Fig. 3B

OIPE SEP 04 2002 PATENT & TRADEMARK OFFICE JC181


```
gttcttctttagGGACCTTAATCCTTTGCATCAGTTGACTGACCAGACGGATTACCAAGA 1080
             D  L  N  P  L  H  Q  L  T  D  Q  T  D  Y  Q  D

CAAGTATTATAACAAGATAATGTCCATATATCACAAATATGCTGAGgtgaccacaagaat 1140
 K  Y  Y  N  K  I  M  S  I  Y  H  K  Y  A  E

acaccaaattactcaattgcaagtaaacctaatgctgaggtgtaaatgactgatcttgag 1200

atttatttgcagACTTTCCCATGGGGAGGGAAATTGACTGGTGAATCCATAAAGTTTTTC 1260
                 by2-101  A
            T  F  P  W  G  G  K  L  T  G  E  S  I  K  F  F

TCGCCTTTGGTGATGTGGACTAGGTTTTCGTCTAGCAAAGAAAAACATAAGGCTTTGTTC 1320
S  P  L  V  M  W  T  R  F  S  S  S  K  E  K  H  K  A  L  F

TCTGCGTTTCTAGAGTACTATCAGgtatatactcagcggccaaaagctaaggttttattg 1380
S  A  F  L  E  Y  Y  Q

gaaactttgactgagaatctatcatcttcttcctacagGCATGGCTTGAGATGACAATCC 1440
                                  by2-107  a
                                           A  W  L  E  M  T  I  Q

AAGTGAGGGAGGAGATGGAACCATCTCATGTGAGAGCCAATTGTGAAGCACAACACAAGT 1500
  V  R  E  E  M  E  P  S  H  V  R  A  N  C  E  A  Q  H  K  Y

ACCTGACATGGCGAGCACAAAAGgtgatttcatttccttttgtgtaatttgcatgtttga 1560
   by2-103  A
  L  T  W  R  A  Q  K

acagacactgtatctgtattgttacaatggatattgatttggtgtttgcagGATCCTGGA 1620
                                              by2-102  a
                                                       D  P  G

CATGGTCTTCTTAAAAGATTAGTAGGTGAAGCAAAGGCAAAGgtataaaagatttgatcc 1680
H  G  L  L  K  R  L  V  G  E  A  K  A  K

cattagtgtccccattattaattagcttgtgaagatgttgaaaatgatttgaacaaaatc 1740

agGAGCTGCTAAGGGATTTCCTGTTCAATGGGGTGGATGAGTTAGGCACAAAAACATTCA 1800
  E  L  L  R  D  F  L  F  N  G  V  D  E  L  G  T  K  T  F  I

TTGATTACTTTCCAGAGTACCAAACAGAAGATGGAACTGTAAGCGATAAACGAAGTATCA 1860
  D  Y  F  P  E  Y  Q  T  E  D  G  T  V  S  D  K  R  S  I  I

TTGGGAAGTCATATGAAACTCGTCCATGGGATTTAACAGGACAATTTATCGGCTAACAAT 1920
  G  K  S  Y  E  T  R  P  W  D  L  T  G  Q  F  I  G  ==

GATATATGTGAACAAGTCAGATTTCAGAGTCATCAACACAAGAGGACGTGAACTTAGGGA 1980

AGTAGGAATAAGAAAGAGCAGCATGAGGAGTCTCTCAGGTCTATCTGCATTTCAAGATGA 2040

TTGTTTGAGTTACCATGCATTGTAGTTTTACAAGTGTAGCTCTCAGCCCTTCATCAAAAT 2100

GAGAATCCTCGAGTATGATATGATTTTAATGAAAATGTATTCGTCTCTacctaatcaaca 2160
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Fig. 3B cont'd.

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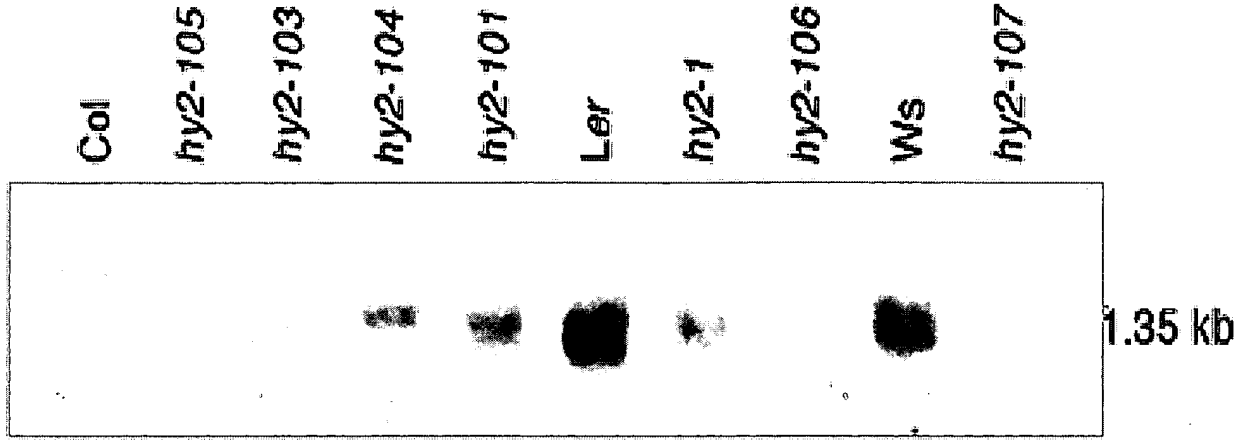

Fig. 4A

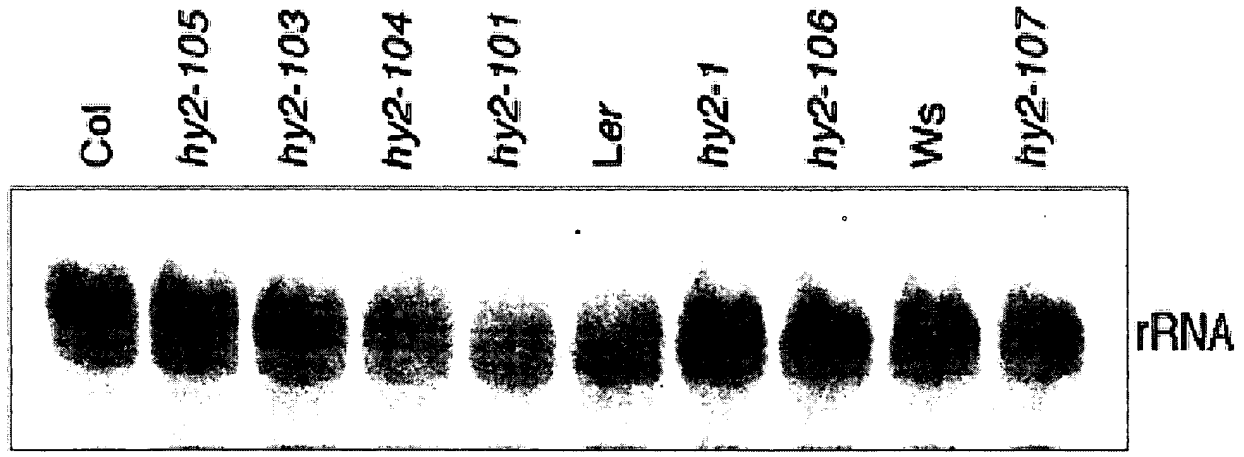

Fig. 4B

OIPE JC161 SEP 04 2002 PATENT & TRADEMARK OFFICE

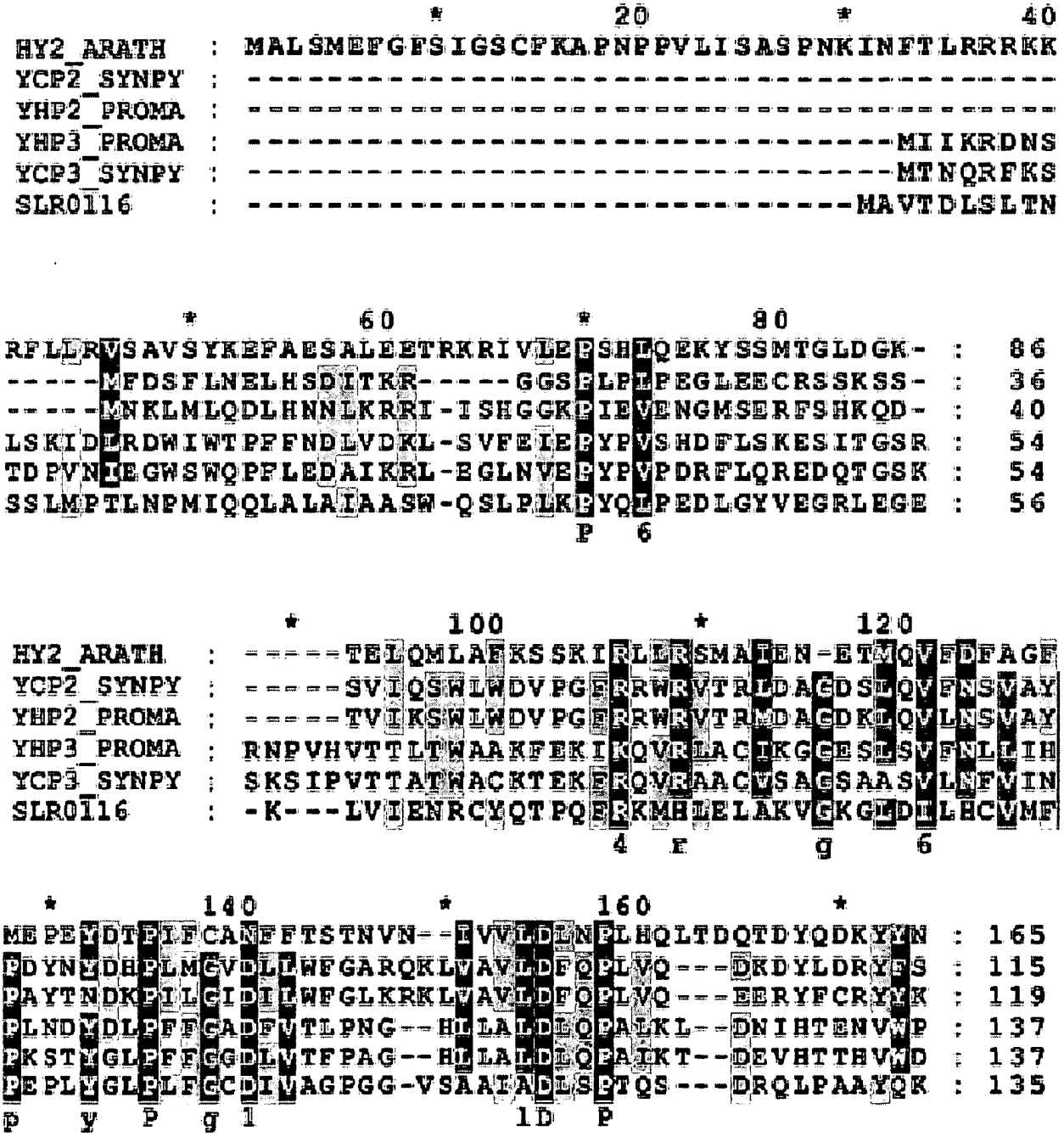

Fig. 5

OIPE
SEP 0 4 2002
PATENT & TRADEMARK OFFICE
JC161

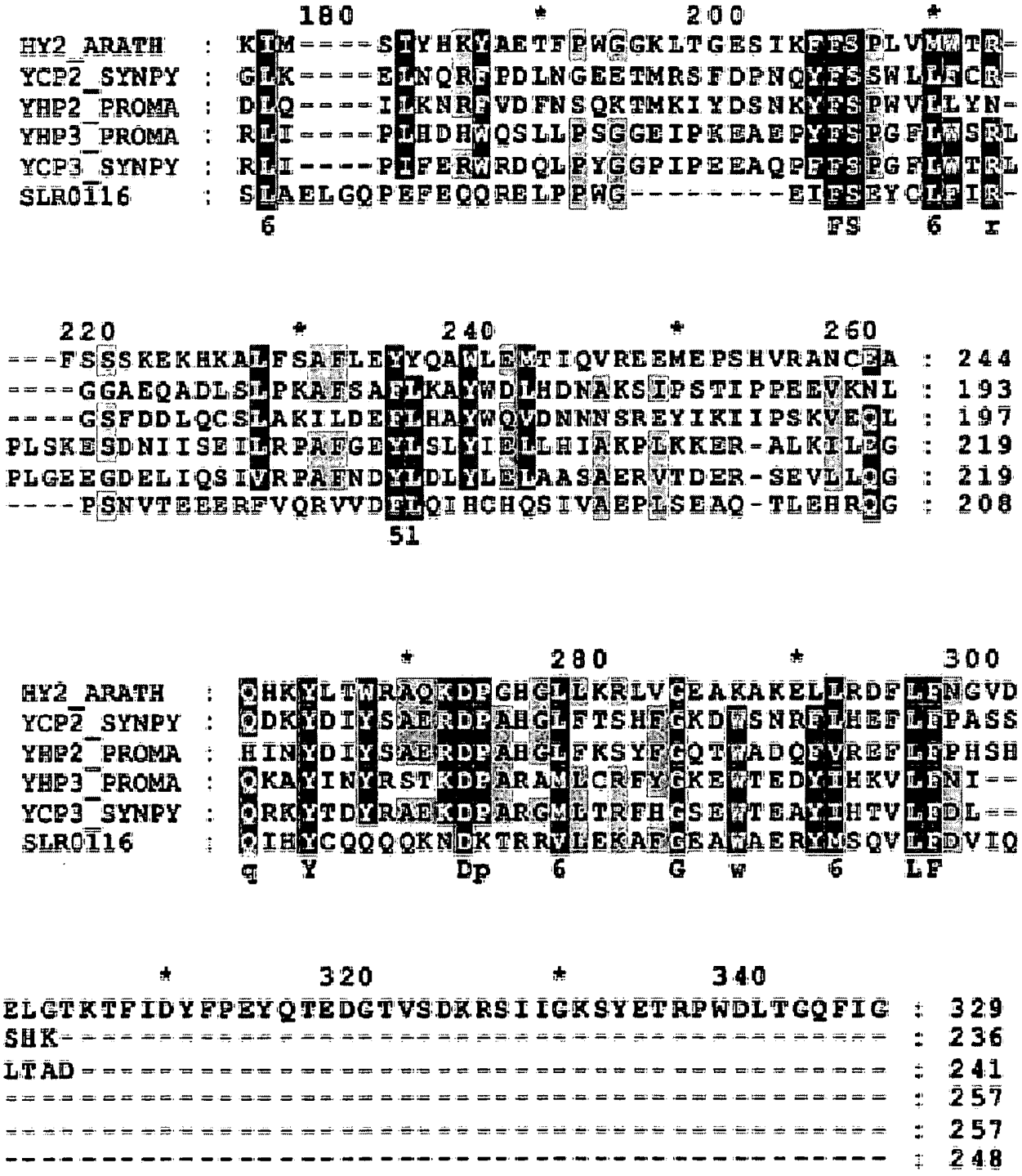

Fig. 5 cont'd.

09870406.090402

OIPE JC181 SEP 06 2002 PATENT & TRADEMARK OFFICE

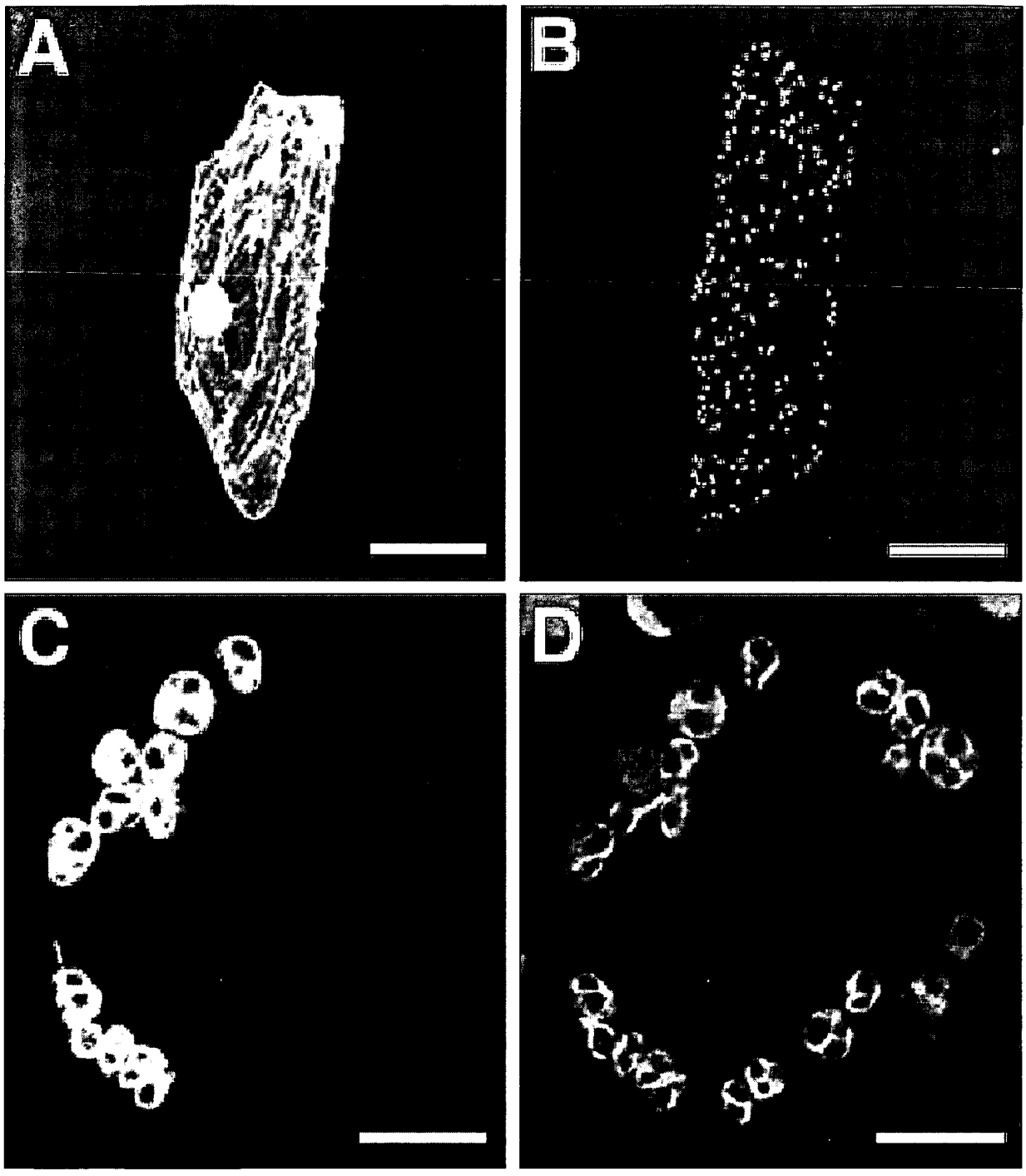

Fig. 6

OIPE JC18
SEP 04 2002
PATENT & TRADEMARK OFFICE

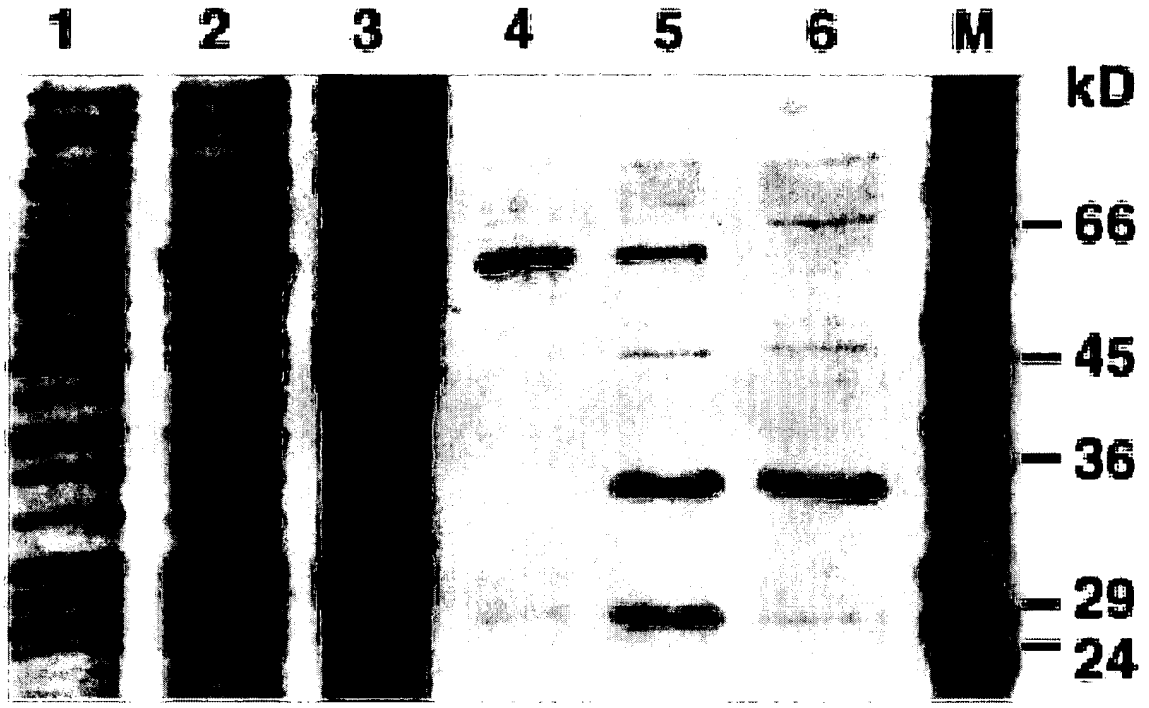

Fig. 7

OIPE JC10
SEP 04 2002
PATENT & TRADEMARK OFFICE

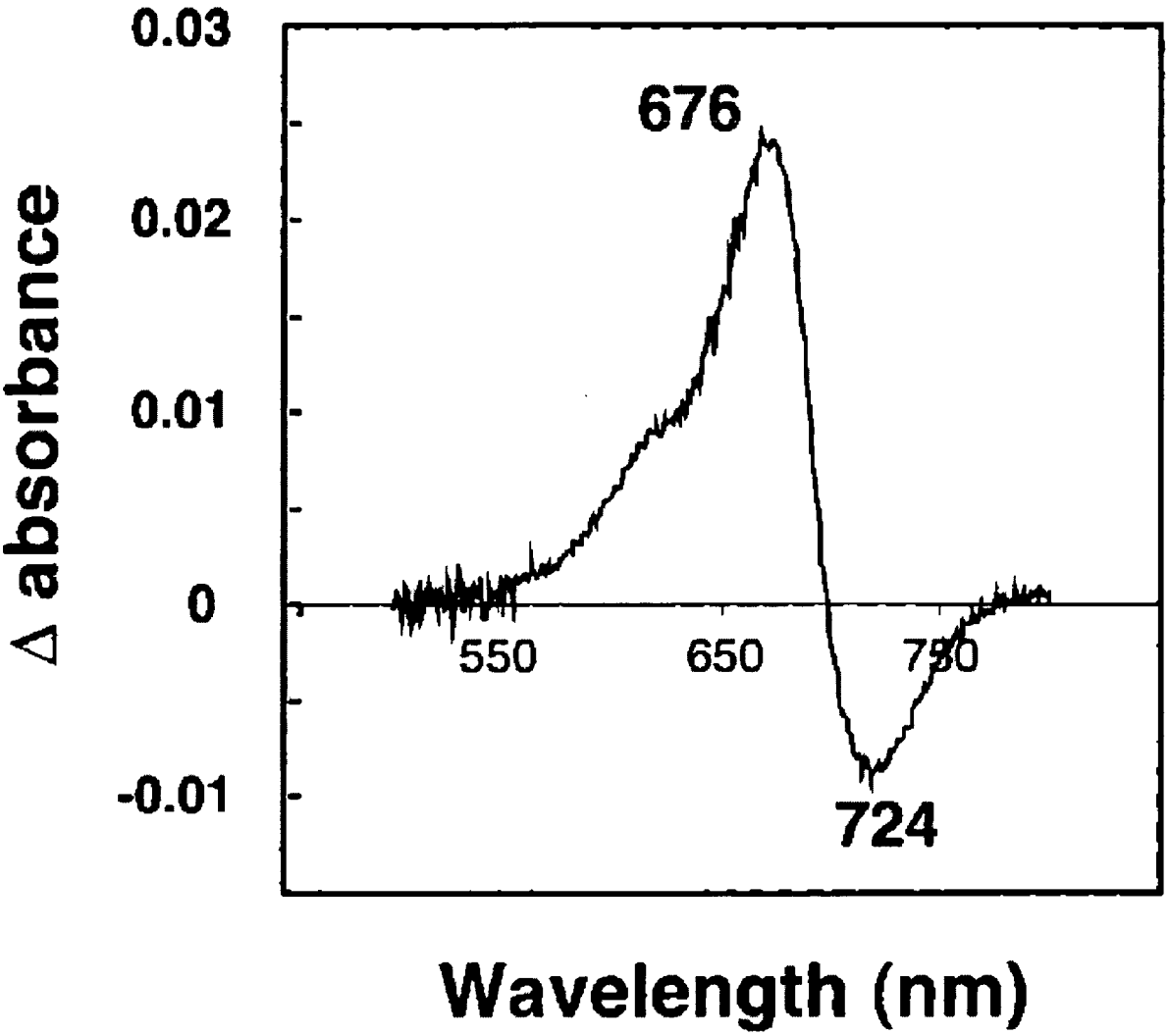

Fig. 8

OIPE JC181
SEP 04 2002
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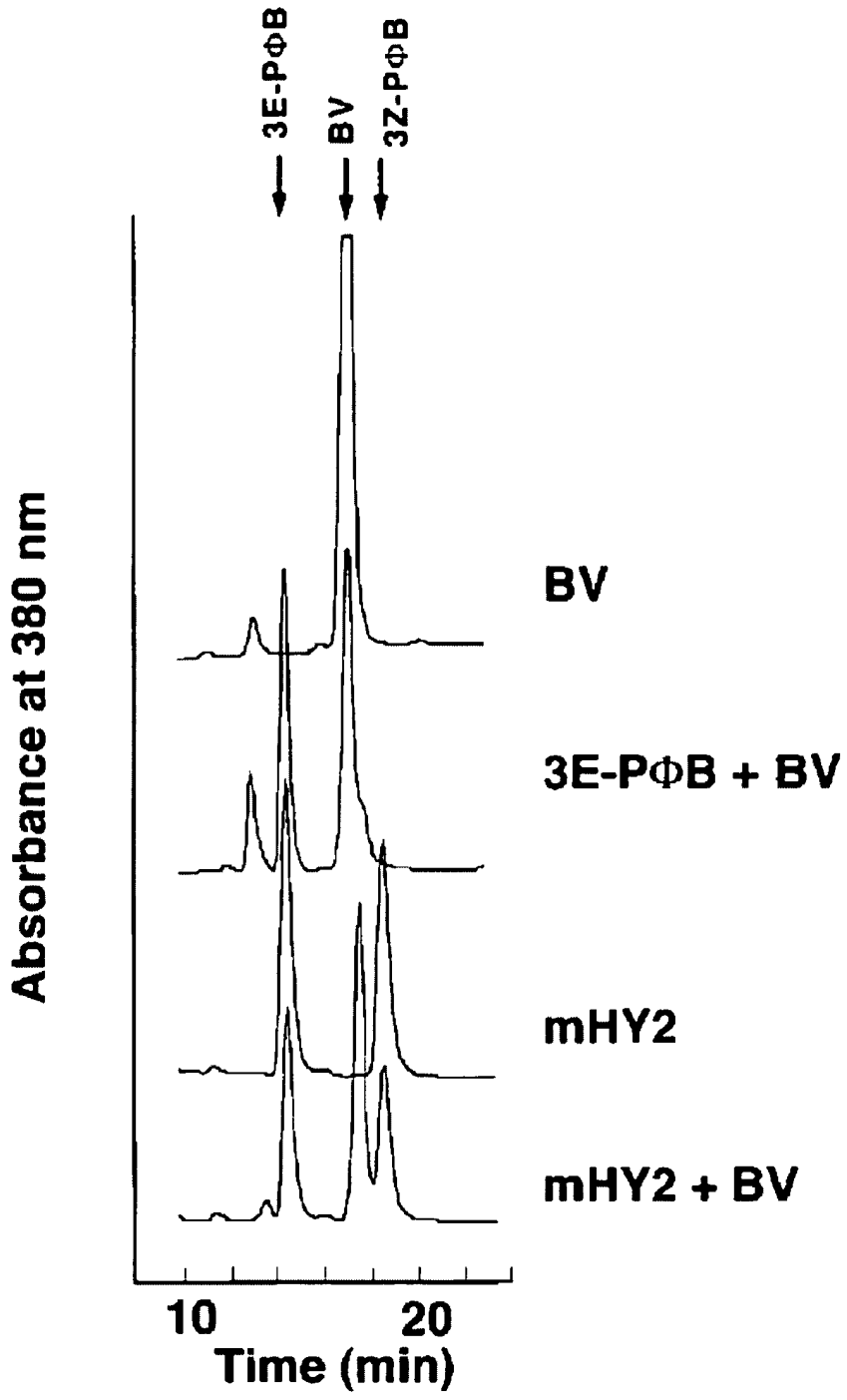

Fig. 9

OIPE JC16 SEP 04 2002 PATENT & TRADEMARK OFFICE


```
                                *         20         *         40
PcyA_ANASP  : ----------------------------------------
PcyA_NOSPU  : ----------------------------------------
PcyA_SYNY3  : ----------------------------------------
PcyA_SYN81  : ----------------------------------------
PcyA_PROME  : ----------------------------------------
PebA_SYNPY  : ----------------------------------------
PebA_SYN81  : ----------------------------------------
PebA_PROMA  : ----------------------------------------
PebA_PROME  : ----------------------------------------
PebA_NOSPU  : ----------MLNSQSPLRNVA
PebB_SYNPY  : ----------------------------------------
PebB_SYN81  : ----------------------------------------
PebB_PROMA  : ----------------------------------------
PebB_PROME  : ----------------------------------------
PebB_NOSPU  : ----------------------------------------
HY2_ARATH   : ----------MALSMEFQFSIGSCFKAPN-PPVLISA
RCCR_ARATH  : MAMIFCNTLYSSSSPSYLSPLTSKPSRFSKNLRPRAQFQS
RCCR_HORVU  : ----------------------------------------

        *         60         *         80         *
------MSLTSIPSLREQQHPLIRQLADCIEEVWHQHLDESPYHLPAEL  :  43
------MSFTSMPSLREQQHPLIRQLADCIEAAWHQHLDESPYHLPDEL  :  43
--MAVTDLSLTNSSLMPTLNPNIQQLALAIAASWQS-LPEKPYQLPEDL  :  46
-------MQSPPSESSSTVAPLIPSLAETIRGAWIGLPEEKPLDADSDF  :  42
-----LNLLSKSLTKTKLIDPLILTLLQNIKVQRSKLNDENCIEVDPKL  :  44
--------------------MFDSFLNELHSDITK-RGGSPLPLPEGL  :  27
--------------------MFDPFLEELQTGIQA-RGGISVEVPAGL  :  27
----------------MNKLMLQDLHNNLKRRIIS-HGGKPIEVENGM  :  31
--------------------MFESLKNFWKTNIE---DEDGKELEISK  :  25
INETCMIAITYFHARVNKSCSMYKPFLEFLEKELFQRFDEQSRVIPFGL  :  64
----MTNQRFKSTDPVNIEGWSWQPFLEDAIKRLEDG-LNVEPYPVPDRF  :  44
---MSIDLRASSLDPVQIPGWRWQPFLDEASAALKP-FNPSPYPIAETF  :  45
----MIIKRDMSLSKIDLRDWENTPFFNDLVDKLSV-FEIEPYPVSHDF  :  44
--------MLIQNTIFYSQEWRWAKFIKFLISQLDN-YHCVEHKIASDF  :  40
------------MNSERSDVTLYQPFLDYAIAYMRSRLDEEPYPIPTGF  :  37
KINFTLRRRKKRFLLRVSAVSYKEFAESALEETRKR-IVEEPSHLQEKY  :  77
HDDHLRRKFMEPPYVSPTRKQLMVDLMSTVENRLQS--QELPCNLPPDV  :  90
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Fig. 10

OIPE JC181 SEP 04 2002 PATENT & TRADEMARK OFFICE

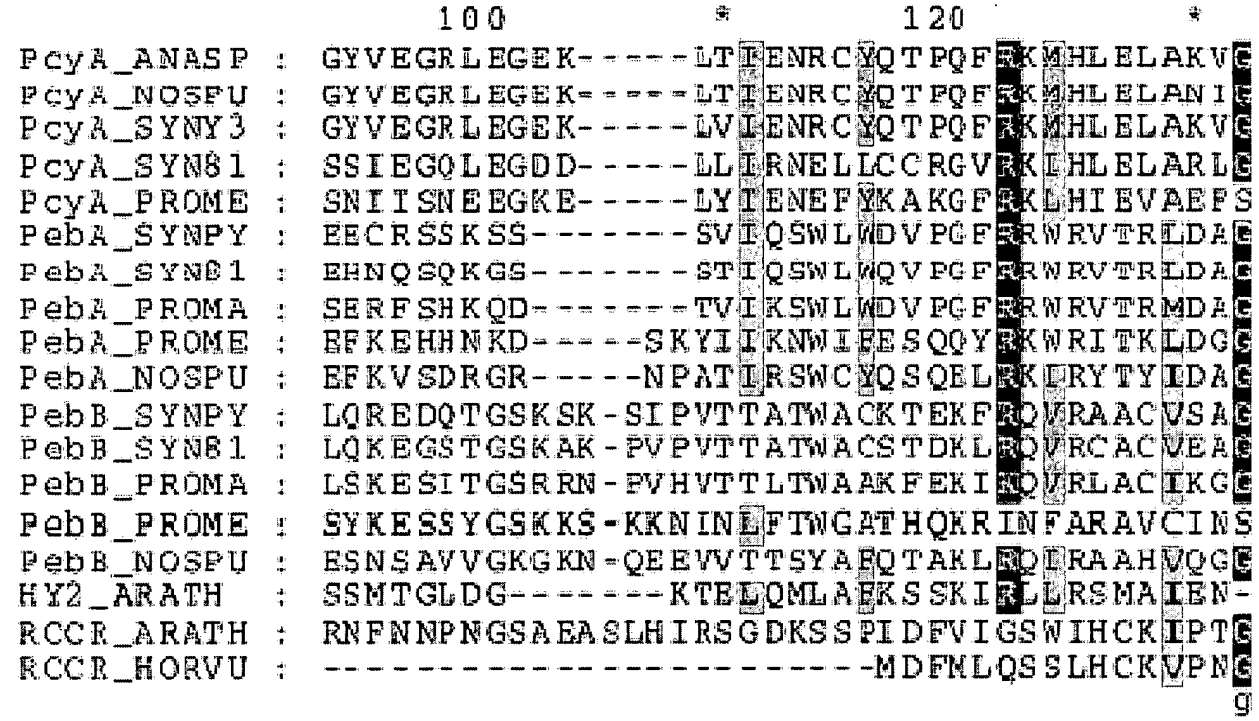

Fig. 10 cont'd.

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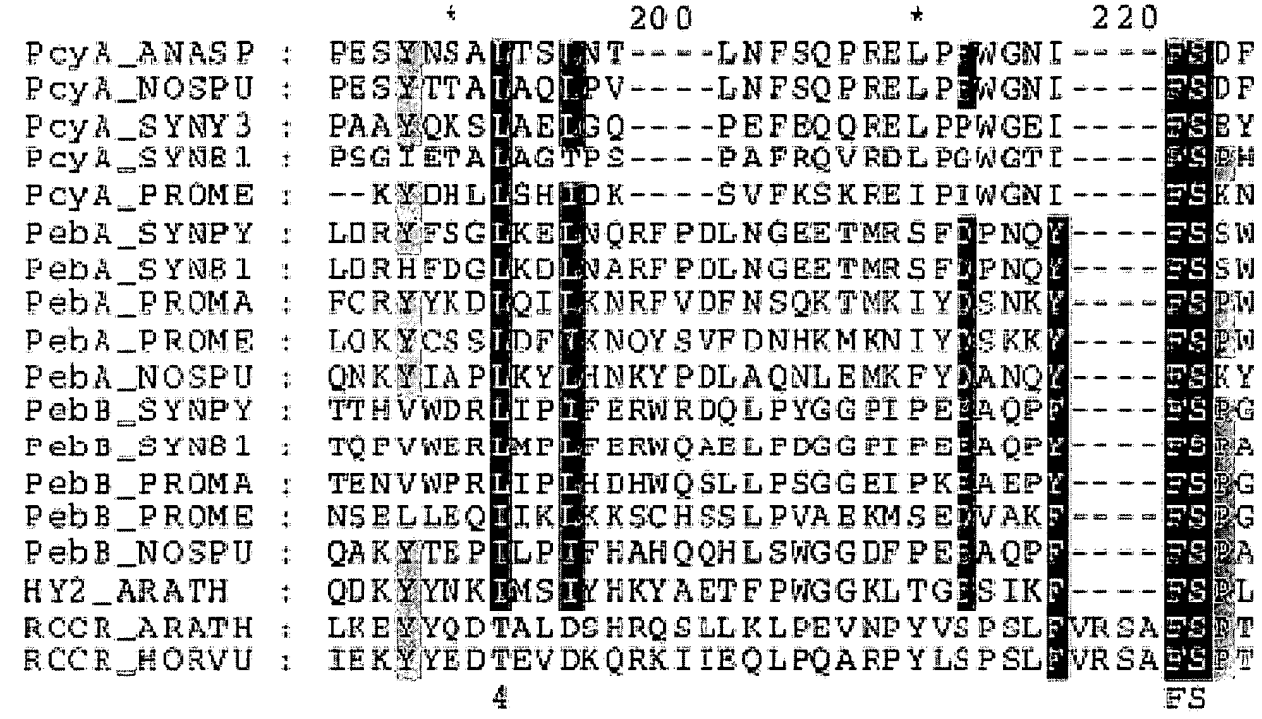

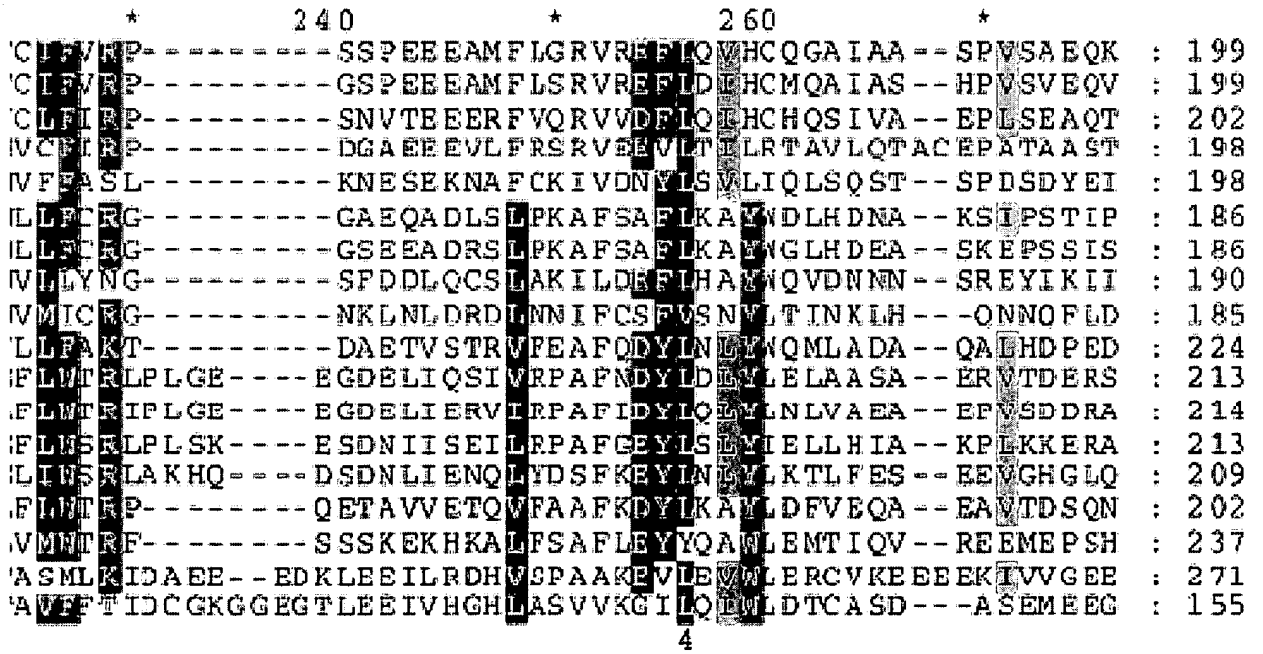

Fig. 10 cont'd.

OIPE JC181 SEP 04 2002 PATENT & TRADEMARK OFFICE

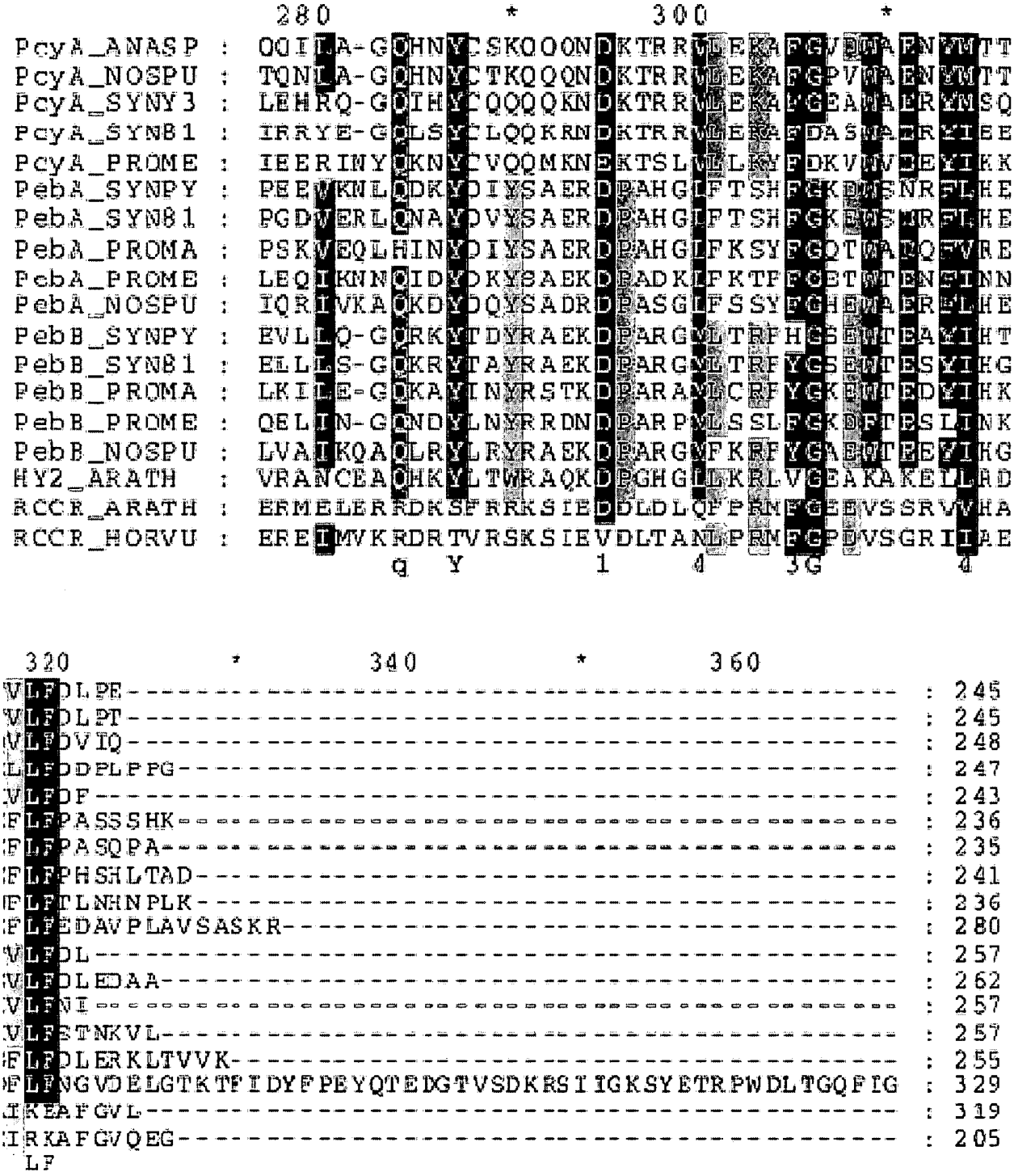

Fig. 10 cont'd.

OIPE JC181 SEP 04 2002 PATENT & TRADEMARK OFFICE

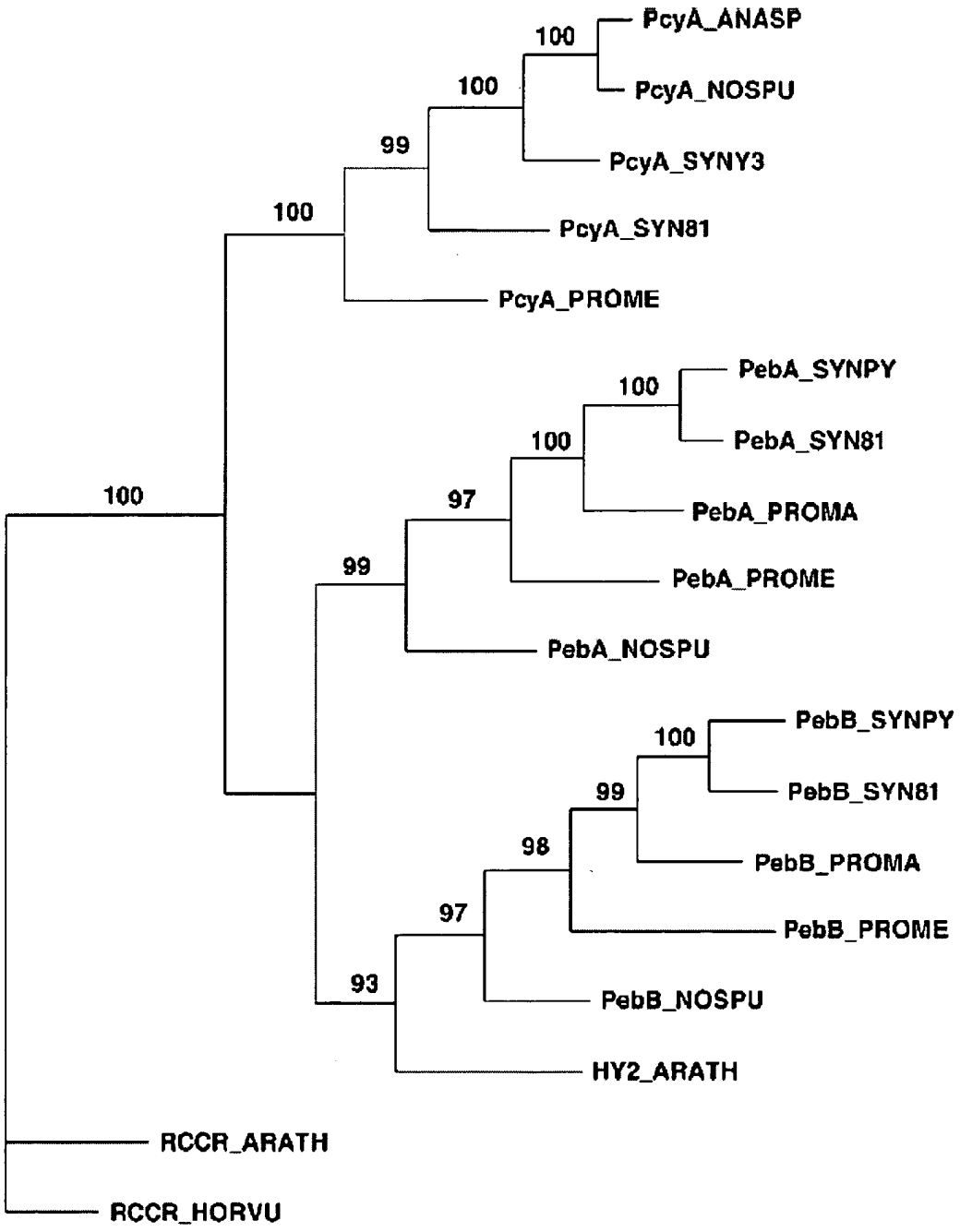

Fig. 11

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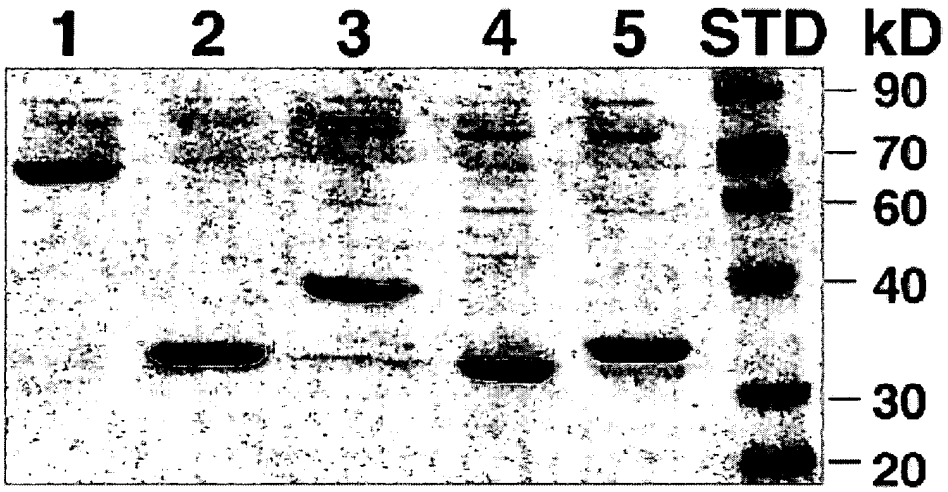

Fig. 12

OIPE JC181
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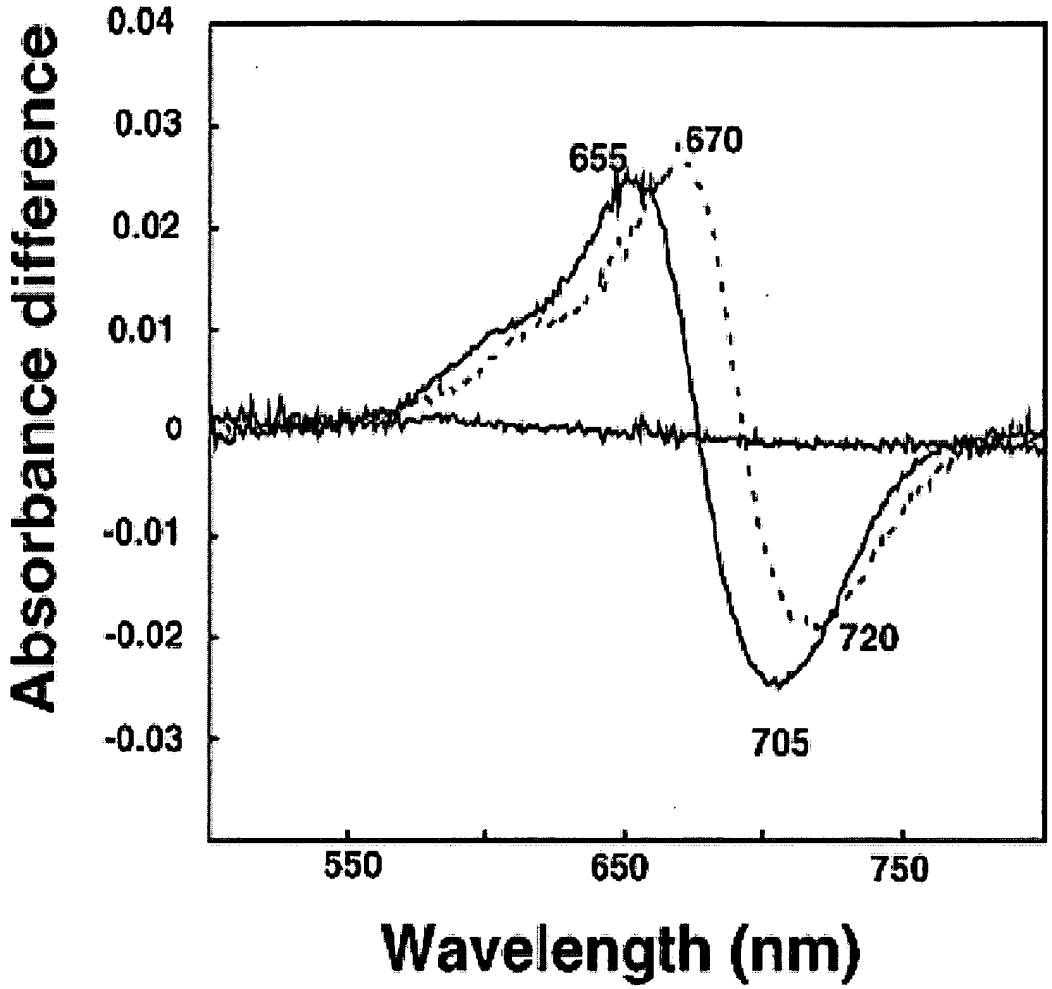

Fig. 13A

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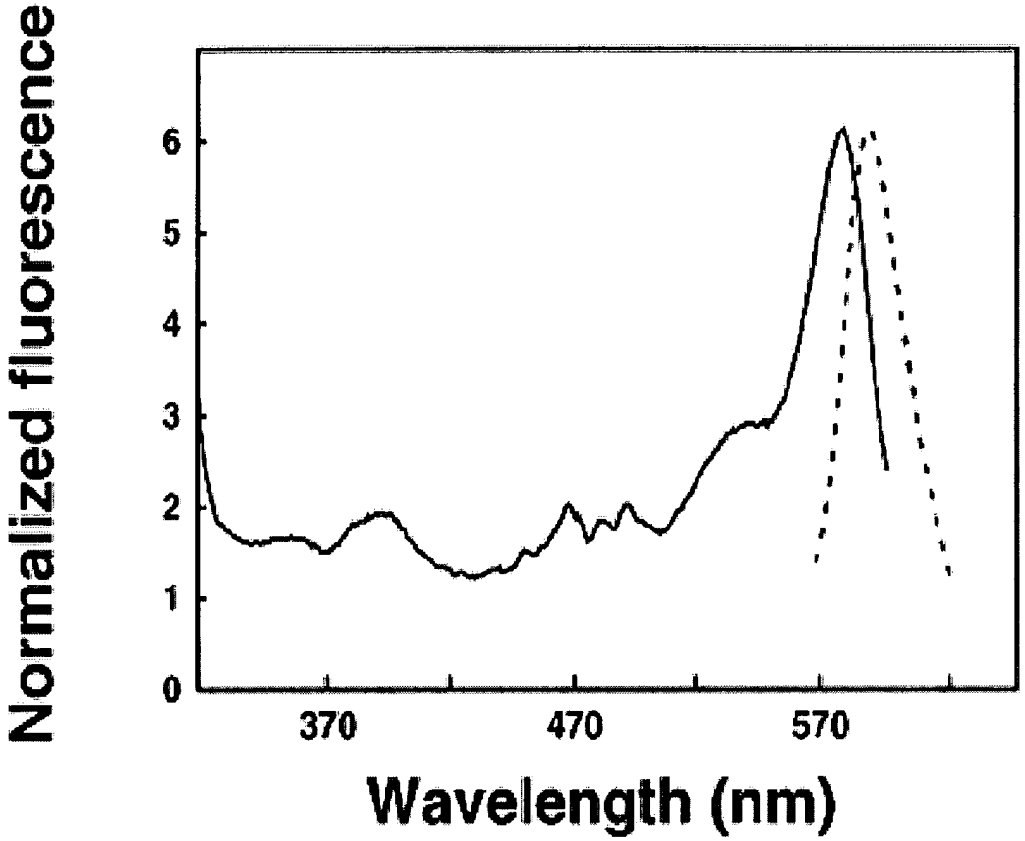

Fig. 13B

OIPE JC181
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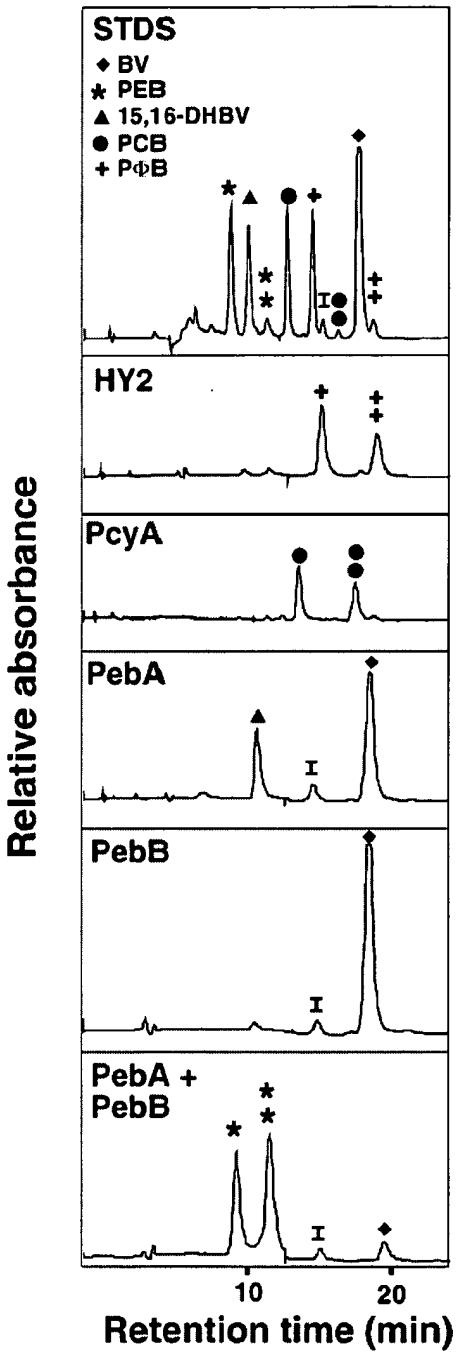

Fig. 14

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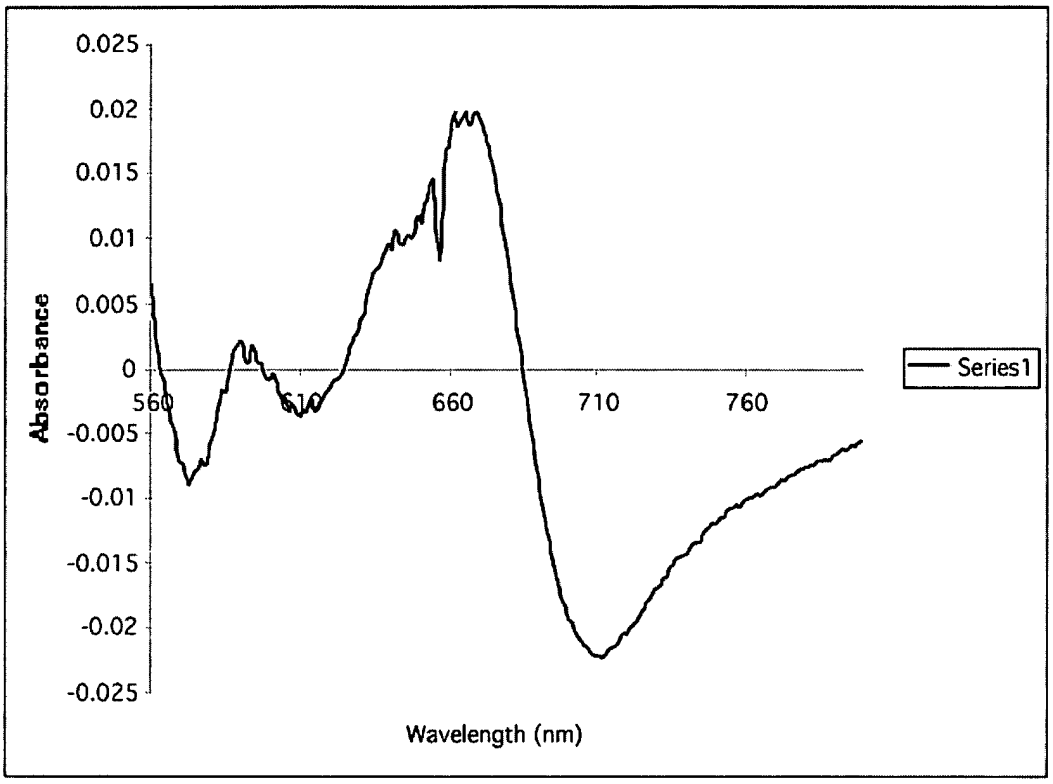

Fig. 15

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SEP 04 2002
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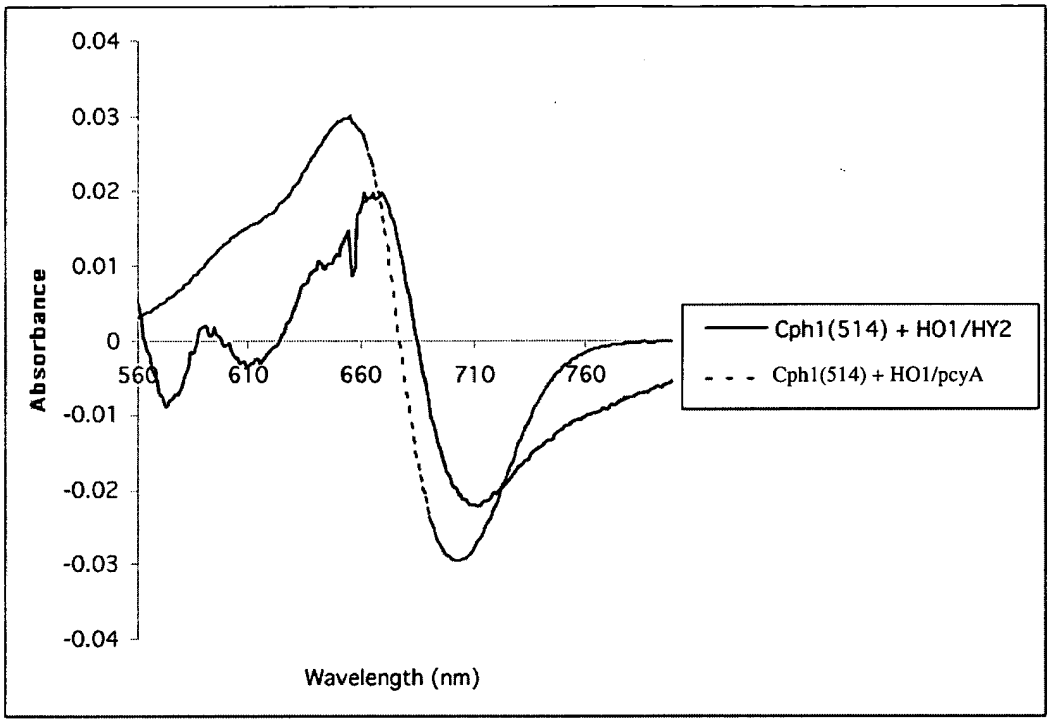

Fig. 16